

AUTOMOTIVE

Available

COMPLIANT

HALOGEN

FREE

Vishay General Semiconductor

Standard Avalanche Surface Mount Rectifiers



DO-220AA (SMP)

PRIMARY CHARACTERISTICS					
I _{F(AV)}	1.5 A				
V _{RRM}	200 V to 1000 V				
I _{FSM}	30 A				
I _R	0.3 μΑ				
V _F at I _F = 1.5 A	0.89 V				
E _{AS}	20 mJ				
T _J max.	175 °C				

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

FEATURES

- Very low profile typical height of 1.0 mm
- · Ideal for automated placement
- · Controlled avalanche characteristics
- Low forward voltage drop
- · Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



Case: DO-220AA (SMP)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS compliant, and

commercial grade

Base P/NHM3 - halogen-free, RoHS compliant, and automotive grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	AS1PD	AS1PG	AS1PJ	AS1PK	AS1PM	UNIT
Device marking code		ASD	ASG	ASJ	ASK	ASM	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	٧
Maximum DC forward current (see fig. 1)	I _F ⁽¹⁾	1.5				Α	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	30			А		
Non-repetitive avalanche energy at $I_{AS} = 1.0 \text{ A}$, $T_A = 25 ^{\circ}\text{C}$	E _{AS}	20			mJ		
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 175			°C		

Note

(1) Mounted on 5 mm x 5 mm pad areas PCB

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	I _F = 1.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.95	-		
		T _A = 125 °C		0.84	-	V	
	I _F = 1.5 A	T _A = 25 °C		0.99	1.15	V	
		T _A = 125 °C		0.89	1.0		
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	0.3	5		
		T _A = 125 °C		35	100	μΑ	
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A},$ $I_{rr} = 0.25 \text{ A}$		t _{rr}	1.5	-	μs	
Typical junction capacitance	4.0 V, 1 MHz		CJ	10.4	-	pF	

Notes

 $^{(1)}$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °c unless otherwise noted)							
PARAMETER	SYMBOL	AS1PD	AS1PG	AS1PJ	AS1PK	AS1PM	UNIT
Typical thermal resistance	R _{0JA} (1)	115					°C/W
Typical trieffial resistance	R _{0JM} (1)			15			- C/VV

Note

Unit mounted on PCB with 5 mm x 5 mm copper pad areas. Thermal resistance $R_{\theta JA}$ - junction to ambient, $R_{\theta JM}$ - junction to mount at the terminal of cathode band

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
AS1PJ-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel			
AS1PJ-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel			
AS1PJHM3/84A (1)	0.024	84A	3000	7" diameter plastic tape and reel			
AS1PJHM3/85A (1)	0.024	85A	10 000	13" diameter plastic tape and reel			

Note

(1) Automotive grade



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RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

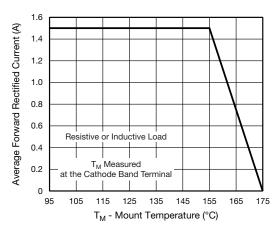


Fig. 1 - Maximum Forward Current Derating Curve

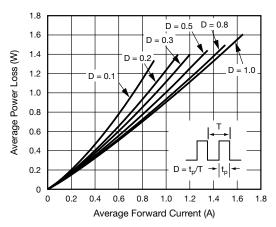


Fig. 2 - Forward Power Loss Characteristics

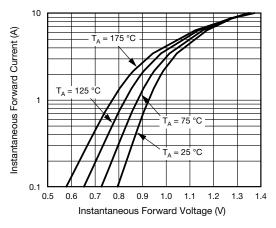


Fig. 3 - Typical Instantaneous Forward Characteristics

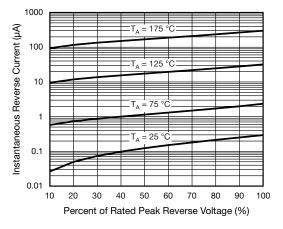


Fig. 4 - Typical Reverse Characteristics

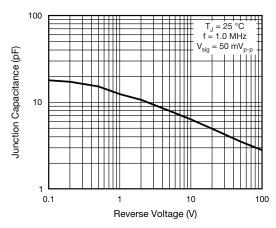


Fig. 5 - Typical Junction Capacitance

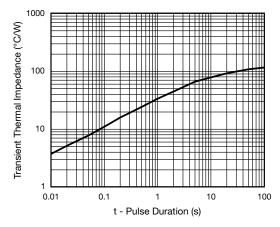


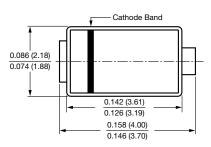
Fig. 6 - Typical Transient Thermal Impedance

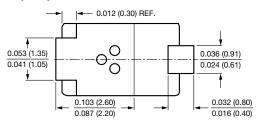
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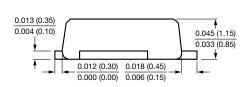


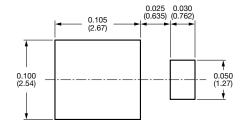
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)









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